

Remarks/Arguments:

Claims 29-35 and 39-43 are pending in the application. These claims are also rejected. Claims 29-43 have been amended.

On page 2, the Official Action rejects claims 29-35 and 39-43 under 35 U.S.C. §112, second paragraph as being indefinite.

Specifically, the Official Action states that it is unclear if the "*transmission data sequence*" on line 7 of claim 29 is the same as the "*transmission data sequence*" on line 4 of claim 29. Applicants have therefore amended claim 29 to show that the transmission data sequences are different. Applicants have amended claim 29 to included a "first transmission data sequence" and a "second transmission data sequence."

The Official Action rejects claim 29, lines 15-18 because it is unclear what is meant by the recitation of "*allocates.*" Applicants have therefore amended claim 29 to clarify that the deciding section decides an allocation for the mobile station by judging whether the mobile station is SDM compatible and whether another mobile station is SDMA compatible. Thus, the deciding section can decide an allocation of the mobile station by judging their SDM and SDMA compatibility based on predetermined evaluation criteria. This feature is at least supported in Fig. 3 and on page 22, lines 15-26 of the specification.

On page 3, the Official Action states that claims 40 and 41 are dependent on cancelled claims. Thus, Applicants have changed the dependency of claims 40 and 41 to respectively depend on claims 30 and 33 as suggested by the Examiner.

On page 3, the Official Action also states that there is no indication that the space division multiplex transmission is transmitted. Thus, Applicants have amended claim 29 to recite that a plurality of transmission beams are transmitted to send the first transmission data sequence by the SDM transmission to the SDM compatible mobile station, and a single transmission beam is transmitted to send the second transmission data sequence by the SDMA transmission to the SDMA compatible mobile station. Thus, Applicants' claim 29 now recites a plurality of transmission beams and a single transmission beam that are transmitted to the mobile stations via a plurality of antennas.

In view of the amendments and arguments set forth above, claims 29-35 and 39-43 are now compliant with 35 U.S.C. §112, second paragraph. Withdrawal of the rejection is respectfully requested.

On page 4, the Official Action rejects claims 29-35 and 39-43 under 35 U.S.C. §103(a) as being unpatentable over Onggosanusi (U.S. 7,110,378) in view of Walton (2003 0128658). It is respectfully submitted, however, that the claims are patentable over the art of record for at least the reasons set forth below.

Applicants' invention, as recited by claim 29, includes a feature which is neither disclosed nor suggested by the art of record, namely:

a deciding section for deciding an allocation for a plurality of mobile stations within a communication area, by judging:

1) whether one of the plurality of mobile stations is a space-division-multiplex (SDM) compatible mobile station by use of a predetermined SDM evaluation criterion; and

2) whether another of the plurality of mobile stations is a space-division-multiple-access (SDMA) compatible mobile station to which a SDMA transmission can be applied along with the SDM compatible mobile station by use of a predetermined SDMA evaluation criterion;

Claim 29 relates to a deciding section which decides an allocation for a plurality of mobile stations. Specifically, the deciding section allocates the plurality of mobile station by judging whether the mobile station is SDM compatible based on SDM evaluation criteria and whether the mobile station is SDMA compatible based on SDMA evaluation criteria. This feature is at least supported in Applicants' Fig. 3A. Furthermore, on page 22, lines 15-26 and page 29, lines 18-26 of the specification. No new matter has been added.

On page 6, the Official Action suggests that paragraph 63 and 64 of Walton suggests the deciding section recited in Applicants' claim 29. Walton suggests a system that schedules user terminals for data transmission based on spacial and/or frequency signatures of the terminals. Specifically, in paragraphs 63 and 64 cited by the Examiner, Walton suggests down link reservation allocation. In paragraph 63, Walton suggests identifying the best set of terminals and their transmission channel assignments. Walton then selects the best set of terminals

based on evaluating their performance in the channel assignment (*"Selecting one or more sets of terminals for evaluation ... assigning the available transmission channels to the terminals in each set in evaluating performance ... identifying the best set of terminals and their transmission channel assignment ... the terminals in the best hypothesis may then be scheduled for data transmission ... to achieve high performance in both flat fading and frequency selective fading channels"*). Thus, Walton's system assigns transmission channels to the terminals and then evaluates their performance. The terminals that perform the best are then selected for transmission. Thus, Walton selects the terminals for transmission which will perform the best in the particular channel assignments (he does not judge whether the sets of terminals are SDM compatible based on SDMA evaluation criteria and SDMA compatible based on SDMA evaluation criteria).

Applicants' claim 29 is different than the combination of Onggosanusi and Walton because of a deciding section which decides an allocation of mobile stations by judging whether the mobile station is SDM compatible and SDMA compatible (*"a deciding section for deciding an allocation for a plurality of mobile stations within a communication area, by judging: 1) whether one of the plurality of mobile stations is a space-division-multiplex (SDM) compatible mobile station by use of a predetermined SDM evaluation criterion; and 2) whether another of the plurality of mobile stations is a space-division-multiple-access (SDMA) compatible mobile station to which a SDMA transmission can be applied along with the SDM compatible mobile station by use of a predetermined SDMA evaluation criterion"*). On page, 22, lines 15-26, Applicants teach that SDM evaluation criterion and SDMA evaluation criterion are calculated (*"space-division multiplex transmission evaluation criterion calculating means 201 is to calculate and evaluation criterion for deciding whether suited for space division multiplex transmission. Space division multiple access evaluation criterion calculating means 202 is to calculate an evaluation criterion for deciding whether suited for space division multiple access"*). The decided means 203 as shown in Fig. 2 utilizes the computed SDM evaluation criterion and SDMA evaluation criterion to judge whether the mobile station is SDM compatible and SDMA compatible (*"by use of those evaluation criterion values, deciding means 203 is to decide an allocation of mobile stations to which SDM or SDMA is to be made"*). This feature is furthermore supported on page 29, lines 17-26 (*"deciding means 203 of the base station 1 decides whether or not SDM transmission is available ... depending upon an evaluation value calculated by the space division multiplex transmission evaluation criterion calculating means 201 ... in case it is an SDM incompatible mobile station 3, the deciding means 203 searches for a mobile station to*

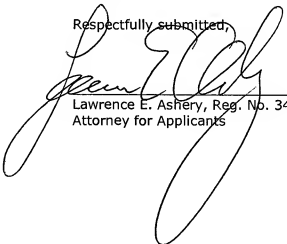
which SDMA is available"). Thus, the deciding section decides allocation of the plurality of mobile stations in a particular communication area by judging their SDM and SDMA compatibility based on SDM evaluation criteria and SDMA evaluation criteria respectively. For example, in Fig. 1, mobile station 2-1 has been allocated for SDM communication and therefore receives a plurality of transmission beams 4-3 to 4-4 from base station 1. Similarly, mobile stations 3-1 and 3-2 are allocated for SDMA transmission and therefore receive a single transmission beam 4-1 and 4-2 respectively. Thus, the deciding section allows the base station to decide allocation of SDM and SDMA compatible mobile stations which co-exists within the same communication area. Accordingly, for the reasons set forth above, claim 29 is patentable over the art of record.

Applicants have amended claims 30-35 and 39-43 to utilize acronyms "SDM" and "SDMA". These amendments were made to simplify the claims.

Dependent claims 30-35 and 39-43 include all of the features of claim 29 from which they depend. Thus, these claims are also patentable over the art of record for at least the reasons set forth above.

In view of the amendments and arguments set forth above, the above-identified application is in the condition for allowance which action is respectfully requested.

Respectfully submitted,



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